

Patent

**IN THE CLAIMS**

Please amend the claims as follows:

**Listing of Claims:**

1. (Original) A method for improving classification of rhythms produced by a beating heart, the rhythms being associated with a sequence of QRS complexes, each complex having a morphology score based on a comparison of the complex to a template, the method comprising:

- (a) storing intervals corresponding to the sequence of complexes;
- (b) analyzing the stored intervals; and
- (c) excluding one or more of the morphology scores based upon the analyzed intervals.

2. (Original) The method of claim 1, wherein the rhythm is a tachycardia.

3. (Original) The method of claim 2, wherein the stored intervals are R-R intervals.

4. (Original) The method of claim 3, further comprising the step of:  
(d) distinguishing between ventricular and supra-ventricular tachycardias based in part on said excluding step.

5. (Original) The method of claim 4, wherein said analyzing step comprises determining a length of each of the stored intervals; and

Patent

comparing the determined length with a threshold value.

6. (Original) The method of claim 5, wherein the threshold value is a percentage of an average length of the stored intervals.

7. (Original) The method of claim 5, wherein the threshold value is a predetermined length.

8. (Original) The method of claim 5, wherein said analyzing step further comprises determining whether the length of the current interval is shorter than the threshold value.

9. (Original) The method of claim 8, wherein the distinguishing step includes determining if a predetermined number of complexes of a total number of required complexes (X of Y) have a morphology score greater than a predetermined threshold; and

wherein step (c) includes not altering the value of X or Y associated with the current interval when the current interval length is shorter than the predetermined length.

10. (Original) The method of claim 8, wherein the distinguishing step includes determining if a predetermined number of complexes of a total number of required complexes (X of Y) have a morphology score greater than a predetermined threshold; and

Patent

wherein step (c) includes decrementing the value of X and Y when the current interval length is shorter than the predetermined length.

11. (Original) A method for enhancing classification of arrhythmias using an implantable cardioverter defibrillator having a memory, the arrhythmia including a sequence of complexes, the method comprising:

storing intervals corresponding to the time between sensed complexes in the memory;

detecting a tachycardia;

comparing each of the complexes in the sequence with a template to generate a morphology score for each complex;

analyzing the stored intervals when the tachycardia is detected;

determining whether a selected one of the stored intervals is shorter than a predetermined length;

invalidating a morphology score for a complex corresponding to the selected interval if the length of the selected interval is shorter than the predetermined length; and

diagnosing the type of tachycardia based on the remaining valid morphology scores.

12. (Original) The method of claim 11, wherein the predetermined length is indicative of a shortest allowable morphology interval.

Patent

13. (Original) The method of claim 11, further comprising a step after said determining step of:

retaining the morphology score of the complex corresponding to the selected interval if the length of the selected interval is not shorter than the predetermined length.

14. (Original) The method of claim 13, wherein the diagnosing step includes determining if a predetermined number of complexes of a total number of required complexes (X of Y) have a morphology score greater than a predetermined threshold.

15. (Original) A computer readable medium carrying one or more sequences of one or more instructions for execution by one or more processors to perform a method for enhancing classification of a tachycardia using an implantable cardioverter defibrillator having a memory, the arrhythmia including a sequence of complexes, the instructions when executed by the one or more processors causing the one or more processors to perform the steps of:

storing R-R intervals in the memory, each interval corresponding to a subsequent complex;

detecting a tachycardia;

analyzing the stored intervals when the tachycardia is detected;

determining whether a selected one of the stored intervals is shorter than a predetermined length;

Patent

invalidating the complex corresponding to the selected interval if the length of the selected interval is shorter than the predetermined length;

calculating a morphology score based on a comparison to a template for at least each complex not invalidated; and

classifying the tachycardia based on the morphology scores of complexes not invalidated.

16. (Original) The computer readable medium of claim 15, wherein the predetermined length is indicative of a shortest allowable morphology interval.

17. (Original) The computer readable medium of claim 15, further causing the one or more processors to retain the morphology score corresponding to the selected interval if the length of the selected interval is not shorter than the predetermined length.

18. (Original) An apparatus configured to enhance classification of a tachycardia, the apparatus comprising:

means for sensing a sequence of cardiac complexes;

means for measuring and storing a sequence of R-R intervals between successive complexes, each interval corresponding to a subsequent complex;

means for detecting a tachycardia based on the measured intervals;

means for analyzing the stored intervals when the tachycardia is detected;

means for determining whether a selected one of the stored intervals is shorter than a predetermined length;

Patent

means for ignoring the complex corresponding to the selected interval if the length of the selected interval is shorter than the predetermined length; means for calculating a morphology score based on a comparison to a template for at least each complex not ignored; and

means for classifying the tachycardia based on the morphology scores of complexes not ignored.

19. (Currently Amended) A method for improving classification of a tachycardia, the tachycardia being associated with a sequence of complexes, each complex having a calculated morphology score, comprising the steps of:

storing intervals corresponding to the sequence of complexes;

analyzing the stored intervals; and

excluding one or more of the morphology scores based upon the analyzed intervals.

20. (Original) The method of claim 19 wherein the analyzing step includes comparing the stored intervals to an interval threshold.

21. (Original) The method of claim 20 and further including the step of classifying a tachycardia as ventricular or supra-ventricular by analyzing the morphology scores not excluded.

22. (Original) An apparatus for improving classification of rhythms produced by a beating heart, the rhythms being associated with a sequence of

Patent

complexes, each complex having a calculated morphology score, the apparatus comprising:

means for storing intervals corresponding to the sequence of complexes;

means for analyzing the stored intervals; and

means for excluding one or more of the morphology scores based upon the analyzed intervals.